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ABSTRACT

The last in a series of six monographs summarizes findings from a study of three postsecondary vocational technical programs for deaf students and provides guidelines for the development and monitoring of such programs. Introductory materials provide a historical perspective on the problems of vocational technical programs for the deaf, a review of the literature, and statistical data on the vocational status of the deaf. Outlined are the contents of each monograph in the series, and summarized are project findings (detailed in preceding monographs). Guidelines for establishing vocational technical programs for the deaf within existing facilities for students with normal hearing cover the following topics: organizational structure, program priorities, role definition, deaf staff members, key personnel (such as interpreters) other supportive personnel, and other supportive services (such as manual communication training). (LS)

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RESEARCH REPORT #80

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FINAL REPORT

POST SECONDARY PROGRAMS FOR THE DEAF: VI. Summary and Guidelines

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Research, Development and Demonstration
Center in Education of Handicapped Children
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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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December 1974

The research reported herein was performed pursuant to a grant from the Bureau of Education for the Handicapped, U.S. Office of Education, Department of Health, Education, and Welfare to the Center of Research, Development and Demonstration in Education of Handicapped Children, Department of Psychoeducational Studies, University of Minnesota. Contractors undertaking such projects under government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official position of the Bureau of Education for the Handicapped.

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RESEARCH, DEVELOPMENT AND DEMONSTRATION CENTER IN EDUCATION OF HANDICAPPED CHILDREN

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The University of Minnesota Research, Development and Demonstration Center in Education of Handicapped Children has been established to concentrate on intervention strategies and materials which develop and improve language and communication skills in young handicapped children.

The long term objective of the Center is to improve the language and communication abilities of handicapped children by means of identification of linguistically and potentially linguistically handicapped children, development and evaluation of intervention strategies with young handicapped children and dissemination of findings and products of benefit to young handicapped children.

Acknowledgments

The authors would like to thank the following people at each program who were especially helpful during the research conducted in 1973: Linda Donnels, Peter Wuescher, Douglas Wells, Michael Weldon and Roy Pierce--Delgado Junior College; Stanley Traxler, Alice Burch, Lucy Fridell, William Davis and Steven King--Seattle Community College; Robert Lauritsen, Irene Domonkos, Roger Reddan and John Bachman--St. Paul Technical Vocational Institute; along with all the interpreters, preparatory program teachers, technical vocational teachers, counselors and current students at the various participating programs whose cooperation facilitated complete data collection.

Thanks are extended to Audrey Thurlow, Karen Pugh, DeAnna Gehant and Cathy Mattson for their assistance with the preparation of the monographs.

Appreciation and thanks are also due to the following students in the education of the hearing-impaired program at the University of Minnesota who participated in data analysis: Kathy Nelson, Ann Bauleke and Linda Ritchie.

Very special thanks go to Susan Dingman for her extensive work collecting data in Seattle and New Orleans, to Diane Holte whose assistance in organizing and analyzing the data was invaluable to us, and to Douglas Burke for his suggestions concerning the development of questionnaires and interview forms.

The investigators wish to thank the Minnesota, Washington and

Louisiana Departments of Manpower Services of the U.S. Department of Labor for testing many of the students included in the project. In particular, appreciation is extended to Edward Schultz of the Minnesota office for his assistance in preparing General Aptitude Test Battery testing contracts in all three states.

We extend our appreciation to Dr. Ben Hoffmeyer, Headmaster of the American School for the Deaf for granting us free access to the American School's Historical Library and to Jane Wilson, American School librarian for her assistance.

Finally, this project could not have been undertaken without the cooperation of hundreds of parents, vocational rehabilitation counselors, young deaf people and employers. We hope in return this project will have made a contribution to them by bringing the current occupational status of young deaf people into focus and recommending courses of action designed to elevate their status and permit them to become even more productive members of society.

Foreword

The University of Minnesota Research, Development and Demonstration Center in Education of Handicapped Children became involved in the evaluation of post-secondary programs in July 1972, several years after the three programs in consideration had been established. The charge to the Center was to develop, in cooperation with the programs in New Orleans, St. Paul, and Seattle, mechanisms by which to identify those components necessary for the development and maintenance of successful post-secondary vocational technical programs for hearing impaired students.

A special debt of gratitude is owed to the three programs for their willingness to cooperate with an "outside" evaluation team rather than follow the more traditional mode of self-evaluation. We hope that whatever inconvenience the programs may have experienced will be compensated for by the results of the evaluation.

The evaluation was made possible through the cooperation of two federal agencies, the Bureau of Education of the Handicapped (BEH) and Social and Rehabilitation Services (SRS). We gratefully acknowledge the support and advice of Max Mueller of BEH and Edna Adler and Deno Reed of SRS. Of primary importance, of course, has been the interest and support of Boyce Williams, Chief of the Department of Communication Disorders at SRS. The author was a very junior major investigator in 1964 on a project evaluating the economic status of young deaf adults in New England. That project was conducted through the initiation of Dr. Williams and he has continued to exert his

leadership touching many aspects of the lives of deaf individuals. It is safe to say that without his efforts the substantial gains made in vocational technical training for the deaf would have been of a more limited nature.

Finally, my heartfelt appreciation to my colleagues, Steve Fisher and Mary Jane Harlow for their patience, forebearance and initiative. Their work in collecting and analyzing data, traveling to the various programs, setting up and running a conference in the summer of 1973, and the writing up of the findings has been above and beyond the call of duty. As the plans for final dissemination evolved from a relatively concise single report to a series of several monographs their flexibility and capacity for work were equal to the sometimes unreasonable demands placed upon them and their time.

Donald F. Moores

TABLE OF CONTENTS

	Page
Acknowledgments	i
Foreword	iii
Table of Contents	v
List of Tables	viii
List of Figures	ix
Introduction	1
Background and Statement of Problem	1
Review of Literature	3
Investigations of the Vocational Status of the Deaf	7
Organization of Monograph Series	12
Monograph I: Introduction and Overview	12
Monograph II: External Views of Programs	12
Monograph III: Internal Views of Programs	12
Monograph IV: Empirical Data Analysis	13
Monograph V: Follow-Up Data Analysis	13
Monograph VI: Summary and Guidelines	13
Summary of Findings	14
External Views	16
Former Students Currently Employed	16
Immediate Supervisors	18
Parents	18
Vocational Rehabilitation Counselors	19
Internal Views	19
Current Students	19
Administrators	20
Program Counselors	20

Table of Contents (cont.)

	Page
Preparatory Program Staff	22
Program Interpreters	22
Regular Classroom Technical Vocational Teachers	23
Empirical Data Analysis	24
Stanford Achievement Test	24
General Aptitude Test Battery and Nonreading Measure of General Intelligence	24
Wechsler Adult Intelligence Scale Performance	25
Follow-Up Data Analysis	25
General Statements	27
Guidelines	30
Organizational Structure	34
Basic Organizational Three Model Post-Secondary Programs	34
An Alternate Organizational Structure	38
Program Priorities	39
Role Definition	42
Deaf Staff Members	42
Key Personnel	42
Program Director (administrator)	43
Counselor	44
Interpreters	45
Regular Classroom Teacher	46
Other Supportive Personnel	47
Special Teacher	47
Communication Specialist	48
Vocational Teacher of the Deaf	49

Table of Contents (cont.)

	Page
Other Supportive Services	49
Manual Communication Training	49
Housing and Out of School Relationships	50
Personal and Social Counseling	51
Notetaking	52
Employer and Supervisor Orientation	52
Follow-Up	53
References	54

LIST OF TABLES

Table		Page
1	Trades Taught in Schools for the Deaf in 1875 . .	5
2	Vocations Taught in 67 Residential Schools for the Deaf, 1963-64	6

P. 12

LIST OF FIGURES

Figure		Page
1	Organizational Model of Three Post-Secondary Programs Investigated	35
2	Alternate Organizational Structure	37

INTRODUCTION

Background and Statement of the Problem

Since the establishment of programs for the deaf more than 150 years ago, the provision of vocational training has been perceived as one of the major components in the education of deaf children. Historically, schools for the deaf organized their programs to provide terminal vocational skills to the majority of students. Usually, an increasing amount of a student's day was devoted to vocational training as he progressed through secondary school until, in his last few years in school, a relatively small proportion of time was spent in academic subjects.

As the United States evolved from a rural agrarian to an urban/suburban industrial society, the type of training provided by the schools could no longer meet the increasingly technical demands of the working world. What had once been adequate vocational preparation could only be considered prevocational in nature. As a result, deaf individuals fell from general economic parity with the hearing population in the nineteenth century to a position of economic inferiority in the mid-twentieth century.

Except for Gallaudet College, a liberal arts college for the deaf established in 1865, no post secondary programs for the deaf were available prior to World War II. The situation remained unchanged until the middle 1960's, with a few notable exceptions such as the successful Riverside, California program which was established through the cooperation of the Riverside School for the Deaf and

Riverside Community College. In 1966, the Rochester (New York) Institute of Technology was chosen as the sponsoring institution of the federally funded National Technical Institute for the Deaf (NTID). NTID was established to provide professional training programs in science and technology. NTID was the first post-secondary technical program for the deaf and represented a departure from traditional patterns of education in that deaf students were educated on a college campus planned primarily for students with normal hearing.

The establishment of NTID was followed by the provision of federal support for three model post secondary vocational technical programs for the deaf. Again, these programs have been established in facilities originally developed for students with normal hearing. The programs are:

1) Delgado Junior College, New Orleans, Louisiana;
2) Seattle Community College, Seattle, Washington;
3) Technical Vocational Institute, St. Paul, Minnesota.

Since the commission of NTID, more than 25 post secondary programs for the deaf have been developed (Stuckless and Delgado, 1973). Most, but not all, have been supported by funds for vocational education at the state level which have been specifically designated for use with the handicapped. The programs are housed in a variety of settings, including junior colleges, community colleges, vocational schools, state colleges and, in one case, a state university. Without exception, the programs are part of previously established facilities designed for hearing students.

The proliferation of programs has proceeded in an unsystematic way. Given the absence of standards, guidelines and established procedures, it may be assumed that there is a wide range in the extent and quality of services provided. Using the three above-mentioned federally supported programs, the present study was designed with the following objectives:

1) To provide developing post secondary programs with guidelines for establishing programs for the deaf.

2) To determine as precisely as possible the nature of the three demonstration projects in relation to:

   a) Population served
   b) Courses of study offered
   c) Supportive services provided
   d) Cost of services

3) To determine the effectiveness of the type of post secondary programming offered by the three demonstration programs in:

   a) Course success
   b) Employment success
   c) Attrition
   d) Comparison of student and non-student success

4) To consider student characteristics in an attempt to derive implications for specific instructional-vocational procedures.

The objectives may be seen as encompassing two components. The first deals with the three existing federally funded demonstration programs. Formative process evaluation was conducted as a means of increasing the effectiveness of ongoing programs. The final outcome of the project, based on the summative evaluation of the demonstration programs, is concerned with establishing guidelines for new programs.

Review of the Literature

Contemporary concerns involving technical-vocational education

of the deaf were anticipated by the expressed dissatisfaction of nineteenth century educators. Speaking at a meeting of the Eleventh Convention of Instructors of the Deaf in 1886, F. D. Clarke declared:

> The high honor of establishing the first schools in the country where any persistent attempt was made to teach trades belongs to the institution of the deaf. But, though we began first, I hardly think we are keeping abreast of those who started later in the race.

A review of topics in the American Annals of the Deaf over its 120 years of existence provides ample evidence of the importance with which educators of the deaf have considered vocational training. Even the idea of a post-secondary technical institute for the deaf was first expressed in the nineteenth century. Arguing that deaf students require more special preparation than the hearing, Rogers (1888) recommended that a national polytechnic institute for the deaf be established to provide the vocational preparation which could not be supplied by individual schools for the deaf. Rogers' concerns were later echoed by Morrison (1920) who advocated the addition of industrial training to the basically liberal arts program at Gallaudet College. Morrison urged:

> Add to the National College for the Deaf more industrial teaching, with the idea of giving more technical training than is possible in the state or other schools. Let it in great measure set the standard of attainment for the deaf along industrial as well as academic and scientific lines (p. 223).

For the residential schools Morrison recommended a) dropping training in obsolete fields, b) emphasizing machine skills, c) intensifying efforts in a few trades, d) anticipating trades with growing

demands, e) fostering close cooperation between shop and classroom and f) providing more attention to placement. Prior to World War II, Barnes (1940a, 1940b) proposed the separation of academic and vocational education of deaf students through the creation of job training centers in urban areas and the establishment of a non-professional National School of Trades, Agriculture and Vocational Training for the Deaf for students 18 years of age and older.

In 1875, the American Annals of the Deaf first reported vocations taught in schools for the deaf. The trades are presented in Table 1.

Table 1

Trades Taught in Schools for the Deaf in 1875

Baking	Dressmaking
Bookkeeping	Gardening
Broom Making	Painting and Glazing
Cabinet Making	Printing
Carpentry	Sewing
Chair Making	Shoemaking
Cookery	Tailoring

Immediately prior to the establishment of post secondary vocational technical programs, the 1964 Annals (Doctor) reported that a total of 36 vocations were taught in 67 residential schools. The vocations and number of schools in which they were taught is presented in Table 2.

The list of occupations reported in Table 2 serves to illustrate the restricted training options available to a deaf high school student of a decade ago.

Table 2

Vocations Taught in 67 Residential Schools for the Deaf, 1963-64

Vocation	No. of Schools
Agricultural	3
Commercial	47
Clothing & Related Arts	60
Foods & Related Sciences	60
Barbering	10
Commercial Art	10
Cosmetology	20
Drafting	23
Laundering	21
Leatherwork	29
Masonry	4
Metal Work	17
Painting & Decorating	1
Photo Engraving	1
Power Machine Operation	26
Sign Painting & Lettering	3
Library Management	5
Photography	15
Driver Training	26
Auto Mechanics	10
Baking	17
Cleaning & Pressing	18
Dressmaking	43
Electrical Servicing	3
Graphic Arts	46
Ironing	21
Welding	2
Tailoring	8
Upholstering	27
Woodworking	61
Shoe Repairing	6
Horticulture	3
Offset Printing, Printing, Lithograph, Linotype	12
Arts & Crafts, Fine Arts	6
Janitorial	1
Clock Repair	1

Investigations of the Vocational Status of the Deaf

The results of the first study conducted on the vocational status of the deaf concerned the employment of 422 graduates of the American Asylum for the Deaf. In the school's Seventeenth Annual Report, Superintendent J. Williams in 1866 reported that over 50% of the 368 employed men were clustered in seven occupations; 70 farmers, 27 shoe factory operators, 21 mill operators, 20 shoemakers, 20 mechanics, 17 carpenters and 15 teachers. Of the 54 employed women, 27 were mill operators. Of particular interest in the report was Williams' statement that the wages of the 422 employed men and women were consistent with general wages in New England. It appears then that in the late nineteenth century, despite previously noted concerns, schools for the deaf could provide effective vocational training.

In the first nationwide survey, Fusfeld (1926) examined the vocational training offered in 29 schools for the deaf and the occupations of graduates. Printing, carpentry, farming, shoe repairing and dressmaking were the most commonly reported occupations. Evidence from the schools' reports suggested that approximately 50% of the graduates entered occupations for which they were trained. One school reported cooperation with local and state rehabilitation agencies in placement and only two schools employed placement workers.

Lunde and Bigman (1959) in a questionnaire sample of more than 10,000 deaf men and women reported that among the men 10% reported no training, 40% received training in the printing trades, 20% in

carpentry, 15% in shoemaking, 10% in woodworking, cabinet making and baking, and 5% in other areas. For the women 15% had been taught clerical skills while others had sewing, cooking and domestic science. Major areas of employment were printing, tailoring, and shoemaking. Lunde and Bigman reported a median income of $3,465, well above the national median of $2,818. The discrepancy in favor of the deaf was attributed to the nonrepresentativeness of the samples. Minorities, women, the very young and the very old -- groups which traditionally have faced economic discrimination -- were all underrepresented.

Rosenstein and Lerman (1963) investigated the vocational status of 121 women graduates of the Lexington School for the Deaf in New York City. In relation to their present positions, 25% responded that no specific skills were required, 12% indicated their necessary training had been received at the Lexington School, 15% indicated other schools, 10% had received on the job training, and 36% had acquired their skills in similar previous jobs. (Percentages do not add up to 100 because of rounding.)

Impetus for establishment of post-secondary programs for the hearing-impaired was provided with the publication of a study by Boatner, Stuckless and Moores (1964) on the occupational status of young deaf adults in New England. The results were interpreted as demonstrating the need for regional, post-secondary, technical-vocational training centers. Among its major findings were:

1. Young deaf adults were underemployed; the majority were engaged in semi-skilled or unskilled positions.

2. The wages of young deaf adults were 22% below those of their hearing siblings.

3. Training provided by the programs for the deaf in New England was, in reality, pre-vocational training and did not provide the students necessary competitive skills.

4. The unemployment rate of 20% was approximately four times that of the New England region.

5. Of 840 specific occupations rated as to necessary aptitude levels, 753 were seen as suitable for one or more students. Among the general fields were:

library science	artistic arranging
managerial; industrial	quantity cooking
routine recording	bench work
mechanical repair	electrical repair
complex machine operation	structural crafts
typing, stenographic	graphic arts
food serving	inspecting and testing

6. Deafness itself precluded relatively few skilled occupations. However, most of the positions were not available to deaf students because they lacked appropriate training.

7. Deaf students and young deaf adults received insufficient vocational counseling and placement services. Friends and relatives helped in obtaining jobs in 59% of the cases.

8. Immediate supervisors of 95% of the employed adults rated them average or better in job performance.

9. The greatest problem noted by supervisors related to difficulties of communication.

10. More than 90 percent of the parents of current and former students of schools for the deaf and 73% of the young deaf adults approved of the concept of regional technical-vocational centers at the post-secondary level.

These results, the authors concluded, supported the position that vocational education for the deaf could best be conducted for most deaf students on a regional basis, under a faculty of vocational

educators specially prepared to provide instruction and ancillary services to the deaf.

The study was replicated in seven southern and southwestern states by Kronenberg and Blake (1966). The purpose was the same as that of the New England study, to assess the occupational status and opportunities for young deaf adults. The results, essentially similar, also supported the concept of post-school employment preparation programs. The authors reported:

1. The rates of unemployment, occupation level, wage, and opportunities for advancement for the deaf, when compared to the same age group of the general U.S. adult population, are inferior.

2. Employed young deaf adults performed well in their jobs, as evidenced by the favorable reports of most supervisors regarding job performance, willingness to have one or more deaf subordinates, and willingness to advance them if further training were received.

3. The vocational preparation resources for the deaf are somewhat limited.

4. The opportunities for young deaf adults to advance under their present employment situations were limited. In spite of their employer's ratings of "average" or "above average" in the performance of their jobs, only a few of the employed young deaf adults could advance beyond their present occupational levels without re-training and/or relocation.

5. The need for updating and upgrading vocational training and ancillary services for young deaf adults appeared long overdue.

6. A majority of current students, former students, and parents perceived a need for post-school training and indicated support for such programs if the opportunity were available. A majority of parents preferred that post-school training for young deaf adults be provided in a facility for hearing students where modifications, including additional staff, would be introduced to serve deaf trainees. Approximately 40% of the young deaf adults had a preference to be trained with deaf peers.

Since post-secondary programs for the hearing impaired have only recently come into existence, research literature concerning the students and quality of such programs is sparse. Craig, Newman and Burrows (1972) discussed the characteristics of the deaf students in the three model post-secondary programs under study in the present investigation in order to draw a composite profile. They reported:

1. The students tend to come from states closest to the regional program; to come from a variety of high school backgrounds though most frequently from residential schools; and to have brought with them the handicaps imposed by being deaf throughout most of their lives.

2. The students enroll in a wide range of courses, though more than half of them follow career lines in office practices and grapnic arts, and data processing. The selection of vocational areas, however, appeared to the authors to be unnecessarily constricted.

3. Two-thirds of the students who left before graduation, left by individual choice. Through counseling and career guidance, an increased number of these cases might be reduced. Test scores taken from the evaluation reports would strongly suggest that deaf students should succeed in schools which provide special tutoring and supportive services.

ORGANIZATION OF MONOGRAPH SERIES

Procedures are spelled out in detail in the appropriate sections. Including the present report, six monographs have been developed and comprise the total package. The monographs are as follows:

I Introduction and Overview
II External Views of Programs
III Internal Views of Programs
IV Empirical Data Analysis
V Followup Data Analysis
VI Summary and Guidelines

Monograph I: Introduction and Overview

This report is divided into the following categories:

1. Introduction and Statement of the Problem
2. Review of the Literature
3. Program Descriptions
4. Procedures

Monograph II: External Views of Programs

Material in this monograph is based on results obtained by two sets of interviews and two sets of questionnaires as follows:

1. Interviews of Former Students Now Employed
2. Interviews of Employees' Supervisors
3. Parent Questionnaires
4. Vocational Rehabilitation Counselor Questionnaires

For each category the results are treated separately for each of the three programs (Delgado, Seattle, TVI) as well as on a general basis across programs. The same procedure was followed for all subsequent monographs.

Monograph III: Internal Views of Programs

Material in this section is based on interviews with the following categories of respondents:

1. Current Students
2. Deaf Program Staff
   a) Administrators
   b) Counselors
   c) Preparatory Program Teachers
   d) Interpreters
3. Technical Vocational Teachers-College training staff

Monograph IV: Empirical Data Analysis

Empirical data analysis was conducted on two groups, Former Students and Current Students:

1. Former Students
   a) Stanford Achievement Test
   b) General Aptitude Test Battery
   c) Non-Reading Measure of General Intelligence
   d) Wechsler Adult Intelligence Scale

2. Current Students
   a) Stanford Achievement Test
   b) General Aptitude Test Battery
   c) Non-Reading Measure of General Intelligence
   d) Wechsler Adult Intelligence Scale

Monograph V: Follow-Up Data Analysis

The follow-up data consist of information on former students arranged in the following categories:

1. Areas of Training
2. Former Student Status
   a) Graduates
   b) Goal Completions
   c) Withdrawals
3. Job Placement
4. Geographic Origin

Monograph VI: Guidelines and Summary

This monograph provides guidelines for the development and monitoring of effective vocational technical programs for the deaf within ongoing programs for hearing students. A summary of the complete study is also provided.

SUMMARY OF FINDINGS

The summary, following the organization of the monograph series, is provided in five sections; External Views, Internal Views, Empirical Data Analysis, Follow Up Data Analysis, and General Statements. Although conclusions and generalizations have been derived from data gathered in relationship to the programs at Delgado Junior College, Seattle Community College and St. Paul Technical Vocational Institute, it should be emphasized that the reports do not represent a traditional research investigation. For example, the three programs were funded as demonstration, not research, projects and there are no experimental, control or contrast groups. As such most treatment and analysis of data are descriptive rather than inferential. In addition, the University of Minnesota participation in the project began in July, 1972, well after the programs had been established. It should also be noted that although comparisons between the three demonstration projects are inevitable, and beneficial, in an evaluation such as this, a more overriding goal is the development of guidelines by which similar types of programs for the deaf might be established and maintained.

All three programs were established in already existing facilities originally designed to provide vocational-technical training for students with normal hearing. In each case the deaf students represent a small minority of the total student population. No funds were appropriated for the construction of additional facilities

(as is the case of the National Technical Institute for the Deaf on the Rochester Institute of Technology campus) or for extensive renovation of existing facilities. In addition, because the facilities were already in existence, there was no input at the planning stages prior to construction by which facilities could have been designed to accomodate a sizeable number of deaf students.

A final caveat is related to the question of placement of vocational technical programs for the deaf. A significant number of educators of the deaf believe that a better vocational-technical training model for deaf students would entail the establishment of separate facilities specifically designed for deaf students. Obviously, a strong case can be made for such a position. For example, facilities could be constructed with the special needs of deaf students in mind. It would be easier to attract a wide range of competent professionals with experience working with deaf individuals. Present programs in which the deaf student is in a minority may be low on the list of priorities. Since they are dependent on "outside funds" e.g., direct federal funding or vocational education state "set-asides," they represent minimal state and local commitments and may be terminated when the outside support stops.

Unfortunately, the relative merits of separate vocational-technical training facilities for the deaf cannot be addressed within the context of the present evaluation. No such programs are in existence and, apparently, none are projected for the forseeable future. Therefore the present report is limited to the model

presented in each of the three cooperating programs; a semi-autonomous program for the deaf functioning within the context of a much larger vocational technical program for students with normal hearing with sources of funding different from the general program.

External Views

The external views reported are compiled from interviews of former students at the three programs who were employed at the time of interview and from their immediate supervisors. Additional information was gathered by questionnaires developed for parents of former and current students and for vocational rehabilitation counselors who had students in the programs as clients.

Former Students Currently Employed

1. A majority of former students (73%) approved of the idea of technical-vocational programs for the deaf, were positive toward their programs, and most were appreciative of the training and supportive services afforded them.

2. Compared to investigations of the occupational status of young deaf adults ten years previously (Boatner, Stuckless and Moores, 1964; Kroneberg and Blake, 1965) the occupational status of former students of the three post-secondary programs under study provides evidence that the programs have facilitated an upward movement in the job market for their students. Where nearly 67% of the Boatner, Stuckless and Moores sample fell into semi-skilled and unskilled categories, 75% of former students in the present study have posi-

tions in the technical and trades and commercial categories.

3. The upward movement, however, showed no major shifts in or breakthroughs to new types of occupations, but rather a general upward trend within the framework of positions traditionally held by deaf people. There was a tendency to cluster in certain occupations, such as general office practice for females and printing for males.

4. Training, placement opportunities, salaries and chances for advancement for deaf females are much more restrictive than for deaf males.

5. Former students report more job satisfaction than has been found in previous studies. The vocational aspirations of the former students have been influenced by the technical-vocational programs they attended and most of the desired future occupations were within the realm of courses offered by the programs they had attended.

6. Comparative figures suggest that the young deaf adults interviewed earn higher salaries than hearing adults of equivalent ages. There is a tendency for this advantage to disappear with older interviewees. Apparent limitations in opportunities for advancement suggest that the relative advantage of these deaf workers will not continue with age.

7. Consistent with previous studies, the deaf worker identified communication difficulties as the major on the job problem. It is a factor in limiting advancement of deaf individuals.

8. In spite of the counseling and placement services provided by the programs, a substantial proportion of jobs were located through the aid of parents, friends and relatives.

Immediate Supervisors

9. Consistent with previous studies, immediate supervisors regarded deaf workers as desirable employees with high job performance and were willing to hire more deaf workers.

10. However supervisors regarded opportunities for advancement for their deaf workers as limited, even with further training.

11. Consistent with previous investigations, a majority (67%) of the immediate supervisors mentioned communication difficulties as the major complication on this job.

Parents

12. The majority of parents favored post secondary programs for the deaf within ongoing programs for students with normal hearing. They generally felt that such programs provided an atmosphere within which deaf students could adjust to and cope with situations they would face in the future.

13. Most parents expressed satisfaction with their children's vocational-technical training.

14. What complaints parents had were not with the basic concepts of the programs but rather concerned finances, distance, housing, transportation, lack of interpreters, length of programs and lack of modern equipment.

15. Job expectations of parents for their deaf children prior to and during training are low, probably reflecting the educational experiences of their children at preschool, elementary and secondary levels.

Vocational Rehabilitation Counselors

16. The majority of vocational rehabilitation counselors felt that the training received by their deaf clients in post secondary programs was adequate.

17. Vocational Rehabilitation Counselors tended to be quite critical of the education their clients had received prior to their vocational technical training.

18. Vocational Rehabilitation Counselors defined their role as one of making recommendations for training, providing guidance and counseling to make the client aware of what to expect and to enable him to cope with advanced training. Few suggested direct involvement in the training process.

Internal Views

The internal views reported represent the results of interviews conducted in the three programs with individuals in the following categories:

1. Current Students
2. Deaf Program Staff
   a) Administrators
   b) Counselors
   c) Preparatory Program Teachers
   d) Interpreters
3. Regular Classroom Technical Vocational Teachers

Current Students

1. Nearly 90% of the students interviewed were satisfied with the training they were receiving. Most approved of the idea of vocational-technical programs for the hearing impaired and most preferred to attend school with both hearing and hearing-impaired peers.

2. Occupational choices tended to fall along traditional and sex lines. Nearly 40% of males chose graphic arts/printing or cabinet

making/carpentry as their future occupations. Sixty percent of the choices of deaf females came under the category of General Office Practice.

3. In contrast to their generally low vocational aspiration levels, almost one-fourth of the students planned to attend college upon leaving schools, a choice in contradition to the stated goals of the programs.

Administrators

4. None of the three program administrators was trained at the Bachelor's or Master's degree level in education of the deaf or had degrees in counseling, educational administration and/or supervision. Two received degrees in a related field (audiology) and had extensive prior experience with deaf individuals.

5. Each administrator set the tone for his program (all three were males) and programs reflected the particular philosophies of their directors.

6. Each administrator had to coordinate and supervise a preparatory program component, a counseling component and an interpreter component, serve in a liason capacity with technical vocational teachers and administration, supervise the students, maintain contact with the community and employers, and be responsible for program funding. Funding considerations required a disproportionate amount of time and reduced the administrators' effectiveness in other areas.

Program Counselors

7. In terms of education, the majority of counselors were trained specifically as counselors and therefore had better academic training

for their role than administrators and preparatory program teachers.

8. The role of the counselor is unique in that it involves contact with the student from time of entrance, through the prep program, the training program, career selection, placement and follow-up.

9. The role of program counselor is a demanding one and counselors were more prone to express dissatisfaction than other individuals interviewed. Complaints fell within the following areas:

a) Counselors frequently were required to take on administrative responsibilities, requiring up to as much as 50% of their time.

b) Frequent role conflict was noted in the need to provide counseling related to training and vocational concerns on the one hand and the need of many students for counseling of a personal nature.

c) Some counselors felt that students, because of previous experiences, viewed counselors primarily as disciplinarians, or that students did not understand the concept of counseling.

d) Counselors in one program felt that the administrator was interfering with counseling decisions and that interpreters were assuming some of the counselors' functions.

10. Counselors tended to be hearing males. Some difficulty was noted in deaf student/hearing counselor and female student/male counselor relationships.

11. Many of the difficulties noted by counselors could be reduced by specific job descriptions.

12. Given their involvement with students from the beginning of training, counselors have a unique perspective. To perform in their role adequately they should be freed from all non-essential duties. Relieving the counselors of many of the administrative

duties they now handle could improve the quality of counseling services.

Preparatory Program Staff

13. The educational preparation of the preparatory program teachers was inadequate with only one of nine receiving formal educational training directly related to education of the deaf. Three possessed master's degrees.

14. Courses offered were heavily remedial in nature, stressing math and English.

15. Preparatory program teachers felt that deaf students had not been provided basic academic skills by the time of secondary school graduation.

16. Preparatory teachers unanimously agreed that the preparation programs were beneficial. There is little objective data to support this opinion.

Program Interpreters

17. Two of the programs recruited interpreters from children of deaf parents. One program trained its interpreters through interpreter institutes.

18. Classroom teachers were nearly unanimous in expressing support for interpreters and obviously regarded them as the catalyst permitting deaf students to receive technical-vocational training with hearing students.

19. Frequent contact of interpreters with students occasionally led to role conflict with counselors, who sometimes perceived interpreters as overstepping their bounds. Some counselors felt that

students tended to develop a dependency on interpreters and that some interpreters attempted to assume the functions of a counselor or were critical of a counselor's efforts. Since counselors tended to be male and interpreters female, this friction was most evident in relation to female students. Difficulties of this nature were not mentioned in the program which trained its own interpreters and did not rely on deaf children of deaf parents.

20. Most interpreters could switch from word-for-word translation to actual interpretation, depending on the student and nature of the task.

Regular Classroom Technical Vocational Teachers

21. Regular classroom teachers were supportive of and enthusiastic about the programs for the deaf. Many expressed a need for more background information concerning deafness.

22. Some teachers reported slowing the pace of instruction when deaf students were present, but did not consider this to be detrimental to instruction. Rather, it was generally felt that all students benefited from the slower pace and that the presence of deaf students made them better and more careful teachers.

23. As noted previously, teachers were most appreciative of the contributions of interpreters. Teachers expressed a desire that interpreters be knowledgable in the subject area.

24. Regular classroom teachers generally have close ties with industry and unions. They are a valuable source of job information and can be most helpful to a program if properly utilized.

Empirical Data Analysis

The empirical data analysis consisted of treatment of current and former student data within the context of three general categories; Stanford Achievement Test (SAT), General Aptitude Test Battery (GATB), and Non-Reading Measure of Intelligence, and the Wechsler Adult Intelligence Scale (WAIS) performance subtests.

Stanford Achievement Test

1. A profile of grade equivalent scores indicates that achievement on various subtests of the SAT varies as a function of the verbal complexity of the subtest. Students score highest in those areas in which minimal reading skills are required (e.g., Spelling and Arithmetic Computation) and lowest where reading is most necessary (Word Meaning and Paragraph Meaning).

2. Females outperformed males in Spelling and Language subtests. Males tended to score higher on Arithmetic Computation. It is assumed that the differences reflect prior differences in exposure and frequency of application (clerical work and domestic science for females, math related vocational training for males) rather than innate male-female capabilities.

3. Achievement is much lower than would be predicted on the basis of the intellectual abilities of the students.

General Aptitude Test Battery and Non-Reading Measure of General Intelligence

4. Scores on the nine subtests of the GATB cluster into three identifiable groups. The deaf students appear to be superior to the hearing norms on perceptual-spatial abilities (Form Perception,

Clerical Perception, Spatial Aptitude), equal in subtests requiring manual abilities (Motor Coordination, Finger Dexterity, Manual Dexterity), and inferior in subtests with high verbal English loadings (Numerical Ability, Verbal Intelligence, Verbal Ability).

5. The non-reading measure of general intelligence for the sample is slightly higher than the mean of the hearing population.

6. Deaf males tended to score higher than deaf females on spatial ability and lower on perceptual and manual abilities. Again it is assumed that differences may reflect experiential differences.

Wechsler Adult Intelligence Scale--Performance

7. The performance IQ means of the deaf subjects was 108.1, somewhat above the hearing mean of 100 but within the normal range.

8. Consistent with SAT and GATB results, the deaf subjects performed relatively better on subtests measuring association, perceptual and motor skills (Digit Symbol, Block Design, Object Assembly) than on those more dependent on verbal skills (Picture Arrangement, Picture Completion). Deaf females scored higher than deaf males on the Digit Symbol subtest and lower on Picture Completion.

9. Few differences were found across programs. For former students, but not current students, scores of one program were lower than for the other two. Since this was the only program in which sign language was not used in WAIS administration the low scores are suspect.

Follow-Up Data Analysis

Follow-up data were gathered from student files at each of the three programs in the categories of a) areas of training, b) former

student status, c) job placement and d) geographical origin of students.

1. Students in the three programs had a relatively broad range of offerings available, at least in relation to previous opportunities for the deaf. Students had enrolled in 23 different areas in one of the programs, 25 in another and 31 in the third. However, consistent with data gathered from interviews with former and current students, there was a definite clustering in such traditional areas as drafting, carpentry, graphic arts and general office practice.

2. Males were placed in more training areas than females. One program placed males in 21 areas and females in seven areas; another placed males in 24 areas and females in seven areas. The third placed males in 21 areas and females in 16 areas. In one program, 75% of the females had been placed in the general office practice subject area.

3. The graduation rates of two programs (62% and 72%) appear to be higher than for the normal hearing population. These programs also had a 9% and 4% transfer rate respectively, leaving the withdrawal category to account for 29% and 24% for entering students. Major reasons given for withdrawal from these programs were to accept or to seek employment. The third program had a graduation rate of 25%, a goal completion rate (the only program to use this category) of 9% and a transfer rate of 6%. Withdrawals accounted for 60% of entering students. Adjustment difficulties were listed as the reason for withdrawal in the majority of cases by this program.

4. In two programs a large majority of students (91% and 98%) were placed in jobs for which they were trained. For the third program

the figure was 67%.

5. In two programs approximately 60% of the students were placed in employment by the programs themselves. One program relied mainly on program counselors and the other made extensive use of both counselors and regular classroom technical-vocational instructors. Both approaches appeared to be effective. The third program placed 28% of its students.

6. One half of the students on whom the data were compiled (233 of 467) were from the three states in which the programs were located (Louisiana, Minnesota and Washington). Large numbers of the remaining students are drawn from adjacent states. Although each program has students from a large number of states (Delgado, 25 states and the District of Columbia; Seattle, 10 states and Canada and Hong Kong; TVI, 20 states and Canada), they appear to draw students primarily on a regional basis, as originally intended. In effect, the Delgado program serves the southern and south central regions of the United States, Seattle the western region, and TVI the middle western and north central regions. Students from the northeastern part of the United States are underrepresented and, for geographical reasons, apparently have less access to federally sponsored post-secondary vocational-technical training.

General Statements

1. Analysis of scores of deaf subjects on the Stanford, GATB, and WAIS indicates that they are the intellectual equals of hearing adults and may be superior in areas demanding spatial and perceptual

skills. Therefore deaf individuals should have no more difficulty in meeting the cognitive demands of any job than anyone else. The high ratings which supervisors (Monograph II) and regular classroom teachers (Monograph III) give deaf workers and students tend to support such a position.

2. Because deaf people are underemployed, a deaf person is more often than not the intellectual superior of hearing people employed in the same type of work.

3. Problems arise not because of the cognitive demands of a job but because of difficulties in communication, especially insufficient command of the English language.

4. Vocational-technical programs cannot reasonably be expected to provide deaf students the English language skills they have not acquired in 12 years or more of prior schooling. In the authors' opinion, the tendency in preparatory programs to concentrate on "remedial" English and Math detracts from the legitimate emphasis on acquisition of job related skills.

5. The effectiveness of well run post-secondary vocational technical programs for the deaf has been documented. However, they are hampered by the poor education students receive prior to the post secondary level. No matter how effectively post-secondary programs may function, the disadvantage will not be eradicated until preschool, elementary and secondary programs for the deaf begin to provide their students with the means of effective communication. That time is not yet in sight. Until it arrives, the typical deaf worker will

be a person of normal intellectual ability employed in a position beneath his ability and hampered by problems of communication with fellow workers.

GUIDELINES

In discussing the needs of an adequate post secondary vocational-technical training program for the deaf one may either concentrate on the personnel needed or the services needed. It is the plan of the present report: 1) to advance recommendations concerning organizational structure, program priorities, and role definitions, 2) to delineate the minimal key staff necessary for the establishment of programs, 3) to identify those support services which might be desirable but not necessary.

It is assumed that each program will develop its own goals, organization, and priorities and that these priorities will be influenced at least to some extent by factors such as the character of the host facility, economic conditions in the local, state or regional area served, and characteristics of the students in training.

A major purpose of the present investigation was to establish guidelines by which vocational-technical programs for the deaf might be established within existing facilities for students with normal hearing. It is quite possible that such guidelines might also be applicable to a large extent to other types of post secondary programs, e.g., liberal arts programs for deaf students established within a college or university for students with normal hearing. One example might be the programs for the deaf at California State University, Northridge. However it was not within the scope of the present investigation to investigate such a question and the generalizability of the findings to such settings is unknown.

Part of the impetus for guidelines has come from the recent proliferation of vocational-technical programs for the deaf. In 1973, the National Technical Institute for the Deaf and Gallaudet College cooperated to produce a booklet entitled "A Guide to College/Career Programs for Deaf Students" (Stuckless and Delgado, 1973). A total of 27 post secondary programs for the deaf are described. Excluding national programs (Gallaudet College and the National Technical Institute for the Deaf), college-based liberal arts programs (California State University, Northridge and Golden West College), religious programs (Tennessee Temple and Hyles-Anderson College) and a pre-vocational program (Northern Illinois University Speech and Hearing Clinic), it appears that 20 of the 27 programs would come within the framework of the guidelines.

Examination of the data provided by the 20 programs provides some interesting, and disturbing information. For example the 20 programs listed 722 full time deaf students, or approximately 36 per program. Even this is an overestimate because it includes the reported enrollment from the three programs involved in the present study (Seattle, 100; TVI, 100; Delgado, 65). Counting only the remaining 17 programs, there were a total of 457 students or 27 per program. Only four of the programs were established prior to 1970 (no date was given for the establishment of the program at Lee College in Baytown, Texas). Of the 12 programs established since 1970 only one reported a full time enrollment of more than 25 deaf students. This was La Puente Valley Vocational Adult

School in California, which had 90 full-time deaf students, all of whom were residents of California. The median full time enrollment of the 12 programs was 17.5.

Geographic distribution of the programs was quite uneven, with five of the 17 located in California and the majority of the remainder in the southwest and mid-west sections of the United States. In the south, there is only one program east of Louisiana, St. Petersburg Junior College in Florida with 21 deaf students. The only program east and/or north of Ohio is at the Community College of Philadelphia, which serves five deaf students. It seems obvious, then, that deaf individuals in the southeastern, mid-Atlantic and northeastern parts of the country have less opportunity for vocational technical training than deaf individuals in other areas. Since Gallaudet College and the National Technical Institute for the Deaf, both national in scope, are designed to serve academically more successful students, their presence in the East does not compensate for the lack of other post secondary programs.

Examination of the 17 programs established since the founding of the three demonstration programs in New Orleans, St. Paul and Seattle leads to the conclusion that a) they serve a small number of students, typically 15 to 18 in a program, b) they function with limited staffs, c) they provide limited support services, d) they are limited frequently to serving students from one state or even from one section of a state.

The dilemma is essentially the same as that faced by all levels of education of the deaf from the preschool years through adulthood.

It involves two aspects. First is that fact that the condition of deafness has severe implications for the development of communication skills. The majority of deaf individuals need intensive specialized instruction if they are to develop to their fullest potential. A complicating factor is the fact that deafness is a low-incidence condition. If deaf individuals are served on a local basis there will be a large number of programs with each serving a small number of students. Each would be unable to provide comprehensive services and there would be little chance of improving the overall vocational status of deaf people. Except for the more populous states such as California, New York, Pennsylvania, Texas and Illinois, it is doubtful if most states would have a population base large enough to provide adequate vocational technical training.

Educators of the deaf in general have been plagued by the two opposing forces for almost 200 years, i.e., the desirability of educating deaf students on a local basis versus the reality that appropriate services in the form of specialized personnel, equipment and programming frequently cannot be provided at the local level.

There is no reason to believe that the situation is any different at the post secondary level than it is for preschool, elementary and secondary education. Given the present vocational status of deaf adults in our society, and the knowledge gained from the present study, it is the authors' opinion that a successful vocational-technical program for the deaf must consist of a set of well-coordinated components including many which are not provided in most programs at present. The specialized skills of educators of the deaf,

counselors, interpreters and communication specialists are necessary. It is difficult to see how such services can be provided by programs enrolling fewer than 25 students. Although the guidelines are addressed to the services to be provided by a program and not to the numbers of students to be served, it seems reasonable to state that an enrollment of 50 full time deaf students should be a minimum figure.

The potential difficulties inherent in the growth of small post-secondary programs for the deaf was foreseen by the Conference of Executives of American Schools for the Deaf which appointed an ad hoc committee on Post Secondary Education to investigate the situation and develop recommendations for future programs. The work of the Committee culminated in a set of guidelines for post secondary programs (Delgado and Stuckless, 1973). The guidelines presented herein differ in that they are somewhat more specific and are data-based, i.e., they are developed on the basis of information obtained in the course of evaluation of the Delgado, Seattle and TVI programs.

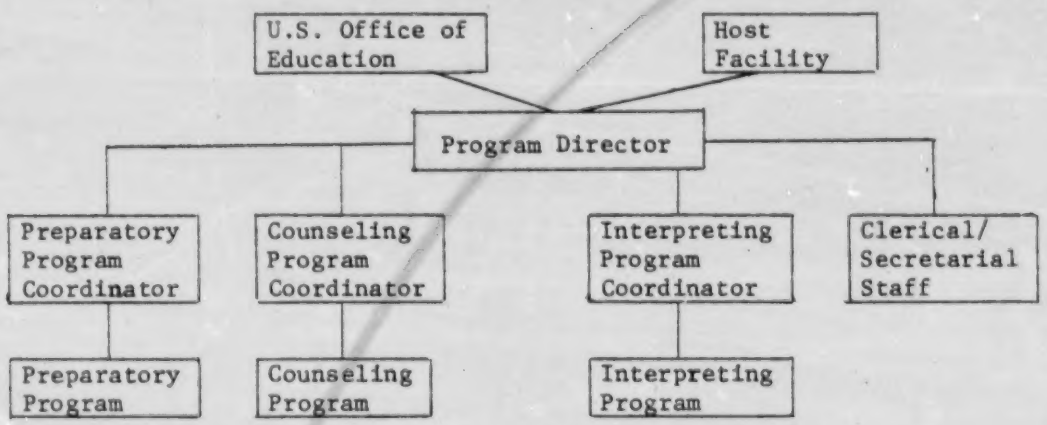
Organizational Structure

Basic Organization of Three Model Post Secondary Programs

Although programmatic variations existed the programs shared the same basic structure, which consisted of three components. As shown in Figure 1 there were a preparatory program component, a Counseling Component and an interpreting component. Each component, or coordinator of the component was responsible to the program director, who had overall responsibility for program administration. Secretarial/clerical functions were also centrally controlled

Figure 1

Organizational Model of Three Post-Secondary Programs Investigated



rather than assigned to individual components. This appeared to be an efficient arrangement. The counseling component made more use of secretarial/clerical staff than the other components.

The directors' relationship with the Preparatory and Counseling Components tended to be less formal than with the Interpreting component. This was probably due to a number of factors. The first two components were relatively small, usually consisting of three persons in each, and there was relatively little turnover, thus allowing relationships to develop over a period of time. The programs hired large numbers of interpreters, many part-time, and the turnover was higher. Thus a director tended to deal with preparatory teachers and counselors on a personal basis but worked through the interpreting coordinator when dealing with interpreters.

In addition to his program responsibilities, the program director also served as the point of articulation between the program and the host facility. Because the programs were federally funded he also was responsible for the development of proposals, budget control and preparation of progress reports for the U.S. Office of Education.

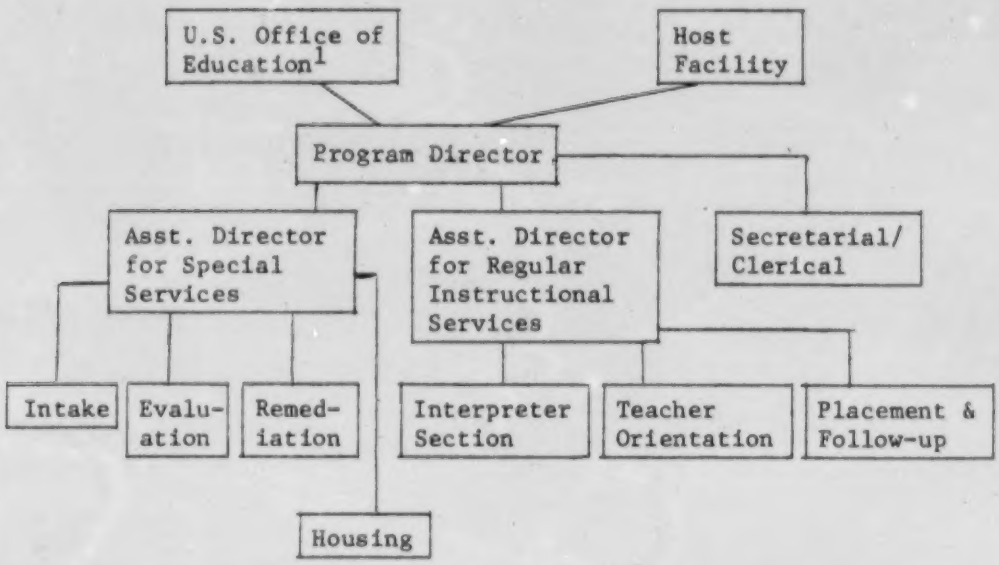
In general the organizational structure presented in Figure 1 appeared to serve the programs fairly well. However, the structure has a number of drawbacks which, in the author's opinion, were detrimental to the success of the programs. Among these were:

1. Regular classroom teachers were minimally involved. They had little or no orientation to deafness and its implications.

2. Program directors were severely over-extended. They were obligated daily to make decisions and perform duties which could just as well have been handled by other staff members.

Figure 2

Alternate Organizational Structure



[1]Or other funding agency

3. At times the three components functioned independently of each other.

4. The potential for role conflict was aggravated by the lack of concise role definitions for the various components.

5. Although the preparatory programs were to a large extent designed to remediate English and Mathematics deficiencies there was little or no systematic effort to evaluate or improve the oral expressive skills of students.

An Alternate Organizational Structure

Because the organization of any program will be influenced to a large extent by its host facility, it is not advisable to advance any one model as inherently superior. However, it should be borne in mind that there are alternatives to the one followed by the three demonstration projects. For example Figure 2 presents an alternate organizational structure which might prove more efficient and prevent some of the difficulties which the programs now face. In this type of structure, the program director's responsibilities are more purely administrative, with the educational and counseling responsibilities delegated to the assistant directors who would serve part-time in these capacities. Under this, the number of people directly responsible to the director are reduced although the staff size is the same. The reorganization would also involve closer working relationships with the classroom teachers, the area presently most in need of attention. Also, the structure would be such that when new responsibilities or functions arise they could be assigned to either of the service areas headed by the assistant directors. At present such responsibilities or functions almost automatically fall to the director.

Program Priorities

It must be remembered that all educational programs operate under restrictions due to limitations of financial, personnel and equipment resources. As such all programs develop priorities, usually implicit, by which decisions are made concerning the allocation of resources. In the case of post-secondary vocational-technical programs for the deaf the first priority is to train deaf individuals to acquire necessary vocational-technical skills so that they are capable of functioning effectively in the world of work. The training should be of relatively short duration and reasonable in cost. All other considerations -e.g., housing, remedial instruction, personal counseling, recreation - are secondary in importance and should be addressed only after the prime concern is adequately provided for.

Because priorities usually are not explicitly stated, formally approved, or periodically reevaluated, many activities tend to become institutionalized and are perpetuated regardless of whether or not they can be shown to contribute to the overall goals of a program. The most obvious example involving the three demonstration projects is the situation wherein large proportions of their resources are devoted to their preparatory programs, which emphasize remedial work in reading, English and mathematics, while at the same time speech and hearing services receive little or no emphasis, a somewhat surprising circumstance given the importance of communication of all types to job success. Three general reasons advanced for the lack of such services are: 1) financial constraints prevent the programs from offering a full

array of support services, 2) the pragmatic nature of the programs emphasizes training for employment and leaves little room for application of diagnostic and remedial techniques, and 3) if students have not acquired expressive and receptive oral skills in 12 years or more of prior education, they cannot be expected to do so in the course of vocational-technical training.

It was never acknowledged that each of the three reasons presented above, if correct, could also be used as arguments against the preparatory programs as presently constituted. The necessity of a preparatory program apparently is unquestioned, probably because of the existence of Gallaudet's preparatory year and the National Technical Institute for the Deaf's vestibule program. Both programs also provide extensive speech and hearing services but they are not as widely known.

It is obvious then that, in each of the programs, written English, reading and math: 1) receive higher priority than oral skills, 2) are considered more pragmatic, 3) are thought to be more remediable at this level than oral skills. Whether the above statements are correct is not the issue. The relevant point is that these assumptions shape the services provided to students. However, there is no evidence that they are correct. The preparatory program teacher more often than not is an individual who has previously taught deaf children at a younger age level, usually in secondary school. The techniques, materials and drills do not differ markedly from those used by secondary teachers of the deaf in English, reading and math. Aside from the subjective opinions of the preparatory teachers themselves, the investigators were unable to find any evidence that the programs

produced dramatic increments in achievement in these areas.

The programs, as presently constituted, have more professionals in the Preparatory component than any other. A composite of the programs would show three teachers, two or three counselors, an interpreter coordinator and a director as professional staff members. The preparatory component's demands on resources of a program in terms of salaries, space, equipment and supplies are great. It is quite possible that as some programs develop their priorities, this component would receive relatively little emphasis. For example, incoming students might participate in a relatively short orientation experience which would include evaluation of a wide range of abilities and achievement but would not involve instruction on the basis of broadly defined academic subject matter (math, English, etc.). Emphasis at this time would be on career exploration, job-sampling and "hands on" experiences. Following placement in a particular area, the student would receive instruction or remediation as needed, related to the specific demands of a specific occupation. The remediation might involve various aspects of mathematics, spoken and written vocabulary, basic principles of physics, and/or work in any number of other areas. Such specific job-related training would not be concerned with general achievement or communication skills. Success of this type of approach could be documented in behavioral terms more easily. Such an approach also would require individuals with different competencies than those possessed by present Preparatory teachers. Instead of three teachers the group might consist of one teacher of the deaf, one communication specialist and one vocational education teacher.

Role Definition

Although the staffs of the three programs were small and many functions were handled on an informal basis the potential for role conflict existed and surfaced to varying degrees in each of the programs. These involved preparatory teacher-counselor, counselor-interpreter and preparatory teacher-interpreter conflicts. In the majority of cases the situations could have been avoided, or the conflict reduced, if definite job descriptions and role expectations had been developed. Although it is desirable to retain a certain amount of flexibility it is suggested that each program develop detailed role definitions for each professional employed.

Deaf Staff Members

Each program employed one deaf staff member, in two cases a preparatory teacher and, in the third program, a counselor. Actually, of the three, one might be considered deaf, one hard of hearing and one deafened. There were no deaf administrators. It is recommended that any vocational-technical program for the deaf should extend active efforts to recruit and retain deaf personnel for all types of positions. This should extend to the hiring of its own graduates when they are qualified. For example, by far the largest training area for female students was in General Office Practice yet none of the programs employed a deaf clerk-typist or secretary.

Key Personnel

On the basis of interviews and observations it is the conclusion of the investigators that a post-secondary technical-vocational pro-

gram for the deaf located in a host facility serving predominantly hearing students must have at its disposal a minimum of one full time administrator, two or more counselors, several interpreters, a secretarial-clerical staff, and the cooperation and support of the majority of regular classroom teachers.

Program Director

It is more difficult to define the appropriate qualifications and training of a program director than for any other position. In an ideal sense the director would have training, experience and/or certification in the following areas:

1. Educational Administration
2. Counseling
3. Education of the Deaf
4. Vocational-Technical Education

The need for such a background becomes evident when we consider that the three present program directors must: (1) coordinate and supervise the preparatory program, counseling and interpreter components; (2) serve in a liaison capacity with regular classroom technical/vocational teachers and administration; (3) supervise the students; (4) mantain contact with the community and employers; and (5) be responsible for program funding.

It is of course impossible to expect any one individual to have such a background. For example, none of the three administrators of the model post secondary programs was a certified teacher of the deaf and none majored in educational administration or counseling in college. Two of them, however, majored in speech and hearing in college and had extensive previous experience with deaf individuals. One had been a vocational rehabilitation counselor, had deaf parents

and grew up near a state residential school for the deaf. The other had experience as a classroom teacher and had been employed as an assistant to the director of a vocational-technical program for the deaf. Both of these individuals appeared to function effectively and experienced less difficulty than the director of the third program, who majored in education, but who had no training in the area of deafness or related field and no experience working with deaf individuals prior to being hired by one of the facilities which housed a program for the deaf. This administrator also was the only one not highly skilled in the use of manual communication.

The program administrator 1) should be trained in education of the deaf (or a related field), educational administration, vocational education, or counseling, 2) should have experience working in programs for the deaf in a teaching, counseling or administrative capacity and 3) should be proficient in the use of manual communication.

Counselor

The program counselors appear to be the most highly qualified individuals on the staffs of the model post-secondary programs. Experience was, for the most part, broad and varied and included training involving deaf and hearing individuals. A general description of counseling duties at the three programs included the following:

1) Vocational counseling
2) Personal counseling
3) Social counseling
4) Admissions
5) Registration
6) Testing
7) Job Sampling
8) Job Placement

9) Class schedules
10) Housing
11) Public relations

It is obvious from the above listing that counselors have been expected to assume too many duties unrelated to their major responsibility. It should be emphasized that their primary concern is vocational counseling and nothing should detract from that. It is necessary that counselors be protected from assuming too many administrative functions and other roles which detract from their effectiveness in their area of prime concern. Counselors interviewed also noted the difficulty between functioning as a social and personal counselor on the one hand and then dealing with the same students as a vocational counselor in a different context.

The background for a counselor of the hearing impaired should include:

1) training in counseling, with experience with deaf and hearing clients.

2) good communication skills, including fluency in sign language and fingerspelling

3) familiarity with job sampling procedures and placement and follow-up techniques.

Interpreters

Two of the programs basically utilized hearing children of deaf parents as interpreters. The other program trained its interpreters through an interpreter institute and developed a pool of readily available interpreters. The program which did not employ hearing children of deaf parents was the one whose program director was the hearing son of deaf parents. Arguments in favor

of training interpreters were: 1) interpreters could be trained to specific standards, 2) the training program developed a uniformity of skills and backgrounds, 3) there would be less variety in signs employed, and 4) the program could select from a large pool of potential interpreters.

There are no objective data available on the relative effectiveness of the two approaches. However, it should be noted that, in the two programs employing hearing children of deaf parents as interpreters, counselors reported that interpreters frequently assumed the functions of counselors and were critical of counselors' efforts. This problem was not mentioned by counselors in the program which trained its own interpreters. If children of deaf parents are employed as interpreters their roles should be spelled out clearly from the beginning of employment.

On the basis of responses of both interpreters and regular classroom teachers, it is recommended that interpreters have training in the subject matter they were interpreting so far as possible. It is preferrable to have the same interpreter assigned to a particular teacher and subject area rather than establish a rotation.

Regular Classroom Teacher

The support of the regular classroom teacher is essential for the success of any program. The most heartening aspect of the entire investigation was the support and enthusiasm toward the programs consistently reported by the regular classroom teachers. Many of them went out of their way to alter class presentations to help deaf students, and to provide extra sets of class notes for

interpreters and deaf students. Several reported attending manual communication classes to acquire basic skills in sign language and fingerspelling.

A major complaint of regular classroom teachers was the lack of information they were provided on deafness and its effects on communication. Generally they did not anticipate the severe problems most of the students had in communication. Some had believed that a basic knowledge of manual communication would surmount all difficulties, a belief they speedily abandoned. In order to provide regular class teachers with a background, programs should:

1. Conduct periodic orientation programs for all interested staff of the host facility.
2. Compile or obtain written materials (packets, brochures) describing the impact of deafness on academic and communicative functioning.
3. Establish consistent patterns of interaction between counselors and regular classroom teachers.

Regular classroom teachers also provide a resource of great potential for placement of program graduates. The teachers tend to be highly competent in their speciality, to be well known by workers in their geographic area and speciality, and to be aware of placement opportunities. They were utilized with good results in one program for student placement. It is recommended that, whenever possible, their special expertise be utilized.

Other Supportive Personnel

Special Teacher

It is recommended that those programs which may not wish to

adopt the preparatory program model presently in existence at the three model programs give careful consideration to the extent to which remedial services be offered beyond those required for occupational success. However, each program should have at least one qualified, certified teacher of the deaf on its staff. The individual should be capable of functioning as a diagnostician/remediation specialist and as an instructor in subject matter related to specific occupations. The individual should have the following qualifications:

1. degree and certification in the area of the hearing impaired
2. classroom experience with the hearing impaired
3. knowledge of remedial techniques and diagnostic evaluation, particularly in the areas of English, mathematics and reading
4. communication skills sufficient to deal with deaf individuals with a wide range of oral and manual abilities.

Communication Specialist

Such an individual should be capable of coordinating the assessment of language functioning of students in written, spoken and manual communication, of ascertaining basic communication skills needed for success, and for developing and implementing training programs to help students acquire such skills. The individual should be either a speech therapist or an educational audiologist. In either case it is assumed that some of the evaluation would have to be done on contract. The communication specialist should have the following qualifications:

1) training and certification in speech and/or hearing

2) clinical or classroom experience working with deaf individuals

3) knowledge of language assessment and remediation techniques

4) proficiency in manual communication

Vocational Teacher of the Deaf

Some programs may wish to employ a vocational teacher of the deaf in addition to, or instead of, a regular teacher of the deaf. If the program is large enough, both are recommended. Such an individual would not have the expertise of the regular teacher of the deaf in traditional subject matter areas, but would have more of a background in instruction related to vocational employment. Rather than functioning on the remedial level, this individual would work more closely with the counselors and would be more involved in vocational exploration and skill development related to specific occupational categories. Such an individual should have:

1. training in vocational education
2. experience as a vocational instructor of the deaf
3. knowledge of job sampling techniques
4. the ability to adapt instruction to the demands of various occupational categories
5. proficiency in manual communication

Other Supportive Services

Manual Communication Training

The methods controversy does not seem to be the factor on the post secondary level that it is in the preschool, elementary and

secondary years. Examination of the Guide to Post Secondary Programs (Delgado and Stuckless, 1973) reveals that all 27 programs employ manual as well as oral communication. A little noted fact is that not all deaf students entering programs have proficiency in manual communication. They should receive instruction in sign language and fingerspelling if they so wish, but it should not be mandatory. It should, however, be mandatory for all personnel employed by the program for the deaf (Administrators, counselors, teachers, interpreters, secretaries, etc.) to attend class until they pass a proficiency test on manual communication. Programs may wish to investigate the proficiency tests used by Galludet College to evaluate its staff.

Regular classroom teachers, all other staff, and students with normal hearing at the host facility should be encouraged to enroll in manual communication classes. One of the model programs claimed great success in this area when the course in manual communication was offered for credit.

Housing and Out of School Relationships

The extent to which programs should be involved in the off campus lives of students is unclear and each of the three programs approached the question in a different manner. One program required that students live in a dormitory during the first year of training. Another program required that students live in certain sections of the city. The third assisted students in finding housing close to campus. In each case, the programs found it necessary to provide an

orientation of some type to students related to problems of independent living. Common problems related to budgeting, food procurement, contractual arrangements and social relationships. It was the consensus at each program that the majority of students previously had been sheltered, did not have the background to live independently at first without guidance of some type, and would not benefit from their training until the transition to independent living had been made. On the other hand, there was an understandable reluctance on the part of most program personnel to attempt to exert too much influence over the out of school activities of students or to act in loco parentis. This has been especially true since the age of majority has been lowered to 18. A second factor contributing to the reluctance to become overly involved in students off campus lives has been the feeling that commitment of extensive resources in this area would detract from the training program.

To a large extent what a program does in this area will be dictated by local conditions. It is recommended that all students undergo an initial orientation on independent living and that students at least receive some help in finding suitable housing. Assistance of any kind should be available on request. However, the students are adults and the less interference in their personal lives the better. A rule of thumb should be not to become involved unless a student's work is suffering.

Personal and Social Counseling

All individuals at one time or another have personal and social problems which can be alleviated by appropriate counseling.

Such problems are more common when an individual changes his or her life style, so it may be anticipated that young adults recently graduated from high school and beginning post secondary training in a new environment would be in need of personal and social counseling, most of which can be provided by the program staff. It should be remembered that the program counselors essentially are vocational counselors. If a student faces severe personal or social problems, it may not be advisable for a counselor to assume that type of counseling role but rather refer the student to a trained, outside, personal counseling source.

Notetaking

Notetaking procedures were handled on an informal basis in each of the three programs, usually involving volunteer hearing students who were provided with carbon notebooks. Typically there were no instructions or suggestions concerning effective ways of outlining or taking notes on class lectures. Most students appeared to rely more on interpreters for information and it is unclear to what extent notetaking was of benefit. If this system is to be employed it should be done on a more formal basis and instructions for note takers should be developed.

Employer and Supervisor Orientation

Interviews with immediate supervisors of employed graduates of the three model programs revealed that they had received little or no information concerning deafness or what to expect from deaf workers. Similar to the reports of regular classroom teachers, many were not prepared to deal with the severe communication problems

they frequently faced.

It is suggested that programs develop a package on deafness appropriate for the needs of supervisors of deaf workers similar to that provided for regular classroom teachers. The package should be supplemented by information provided to the supervisor directly through discussions with a program counselor.

Follow-Up

Follow-up of program graduates tends to be incomplete and to receive little attention. If programs are to evaluate the success of their programs it is mandatory that they develop systematic proceedings for maintaining contact with graduates and receiving feedback on job success.

REFERENCES

Academic achievement test results of a national testing program for hearing impaired students, United States: 1971. Annual Survey of Hearing Impaired Children and Youth (Series D, Number 9).

Barnes, H. B. A cooperative job training center for the deaf -- if! American Annals of the Deaf, 1940, 85, 347-350. (a)

Barnes, H. B. The need for separating advanced vocational training from the elementary school atmosphere. American Annals of the Deaf, 1940, 85, 449-451. (b)

Bayley, N. Review of D. Wechsler, Wechsler Adult Intelligence Scale. In O.K. Buros, The 5th Mental Measurement Yearbook, New York: The Grypon Press, 1959.

Boatner, E. G., Stuckless, E. R., and Moores, D. F. The occupational status of the young deaf adult of New England and the need and demand for a regional technical-vocational training center. West Hartford, Connecticut: American School for the Deaf, 1964.

Bouchard, T. J. Review of J. D. Matarazzo, Wechsler's Measurement and Appraisal of Adult Intelligence (5th ed.). Contemporary Psychology, 1974, 19, 193-195.

Brill, R. G. The relationship of Wechsler IQ's to academic achievement among deaf students. Exceptional Children, 1962, 28, 315-321.

Brochure. Improved vocational, technical and academic opportunities for deaf persons. New Orleans, Louisiana: Delgado Junior College.

Brochure. Technical vocational program for deaf students. St. Paul, Minnesota: Technical Vocational Institute, 1969.

Bruning, J. L. and Kintz, B. L. Computational Handbook of Statistics, Glenview, Illinois: Scott, Foresman and Company, 1968.

Bulletin. St. Paul Area Technical Vocational Institute. St. Paul, Minnesota, 1970.

Burchard, E. M. and Myklebust, H. R. A comparison of congenital and adventitious deafness with respect to its effect on intelligence, personality and social maturity. American Annals of the Deaf, 1942, 87, 241-250.

Burstein, A. G. Review of D. Wechsler, Wechsler Adult Intelligence Scale. In O. K. Buros (Ed.), The 7th Mental Measurement Yearbook (Vol. I), New York: The Gryphon Press, 1972.

Clarke, F. D. Paper presented at the Eleventh Convention of Instructors of the Deaf, Hartford, Connecticut, 1886.

Craig, W. N. and Burrows, N. L. Improved vocational, technical and academic opportunities for deaf people: Research component. University of Pittsburgh: Pittsburgh, Pennsylvania, 1969.

Craig, W. N., Newman, J. and Burrows, N. L. An experiment in post-secondary education for deaf people. American Annals of the Deaf, 1972, 117, 606-611.

Delgado Junior College 1972-73 General Catalog. New Orleans, Louisiana: Delgado Junior College, 1972.

Development of an interim nonreading measure of aptitude G of the GATB. (USES Tech. Rep. No. 1) Washington, D.C.: United States Employment Service, December 1963.

Dictionary of Occupational Titles, Vol. I and II, 3rd Edition; U.S. Department of Labor, 1965, U.S. Government Printing Office, Washington, D.C.

Doctor, P. (Ed.), American Annals of the Deaf, 1964, 109.

Education of the Deaf. (A report to the Secretary of HEW by his Advisory Committee on the Education of the Deaf), Washington, D.C.: U.S. Department of Health, Education and Welfare, 1965.

Fay, E. (Ed.), American Annals of the Deaf and Dumb, 1871, 16.

Fay, E. Report of the committee on a technical school. American Annals of the Deaf and Dumb, 1893, 38, 279-290.

Fisher, S. D., Harlow, M. J. and Moores, D. F. Post-secondary programs for the deaf, Monograph II, External Views. Research Report #61, Research, Development and Demonstration Center in Education of Handicapped Children, University of Minnesota, March 1974.

Fisher, S. D., Moores, D. F. & Harlow, M. J. Post-secondary programs for the deaf, Monograph III, Internal Views. Research Report #67, Research, Development and Demonstration Center in Education of Handicapped Children, University of Minnesota, September 1974.

Further studies in achievement testing, hearing impaired students, United States: Spring 1971. Annual Survey of Hearing Impaired Children and Youth (Series D, Number 13). Washington, D.C.: Office of Demographic Studies, Gallaudet College, September 1973.

Fusfeld, J. S. (Ed.). National Research Council's committee on the survey of schools for the deaf. American Annals of the Deaf, 1926, 71, 284-348.

General Aptitude Test Battery, Section III: Development. United States Department of Labor, Manpower Division, Bureau of Employment Security: Washington, D.C., 1970.

General Aptitude Test Battery, Section IV: Norms Specific Occupations United States Department of Labor, Manpower Division, Bureau of Employment Security: Washington, D.C., 1970.

Guertin, W. H. Review of D. Wechsler, Wechsler Adult Intelligence Scale. In O.K. Buros, The 5th Mental Measurement Yearbook, New York: The Gryphon Press, 1959.

Harlow, M. J., Fisher, S. D. and Moores, D. F. Post-secondary programs for the deaf, Monograph V, Follow-up Data Analysis. Research Report #79, Research, Development and Demonstration Center in Education of Handicapped Children, University of Minnesota, December 1974.

Harlow, M. J., Moores, D. F. and Fisher, S. D. Post-secondary programs for the deaf, Monograph IV, Empirical Data Analysis. Research Report #75, Research, Development and Demonstration Center in Education of Handicapped Children, University of Minnesota, December 1974.

Item analysis of an achievement testing program for hearing impaired students, United States: Spring 1971. Annual Survey of Hearing Impaired Children and Youth (Series D, Number 8). Washington, D.C.: Office of Demographic Studies, Gallaudet College, March 1972.

Kelley, T. L., Madden, R., Gardner, E. F. and Rudman, H. C. Stanford Achievement Test Directions for Administering Intermediate I Battery. New York: Harcourt, Brace and World, Inc., 1964.

Kelley, T. L., Madden, R., Gardner, E. F. and Rudman, H. C. Stanford Achievement Test Directions for Administering Intermediate II Battery. New York: Harcourt, Brace and World, Inc., 1964.

Kronenburg, H. D. and Blake, G. D. Young deaf adults: An occupational survey. Hot Springs, Arkansas: Arkansas Rehabilitation Service, 1966.

Lane, H. S. and Schneider, J. L. A performance test for school age deaf children. American Annals of the Deaf, 1941, 86, 441- .

Levine, E. S. The Psychology of Deafness. New York: Columbia University Press, 1960.

Lunde, A. S. and Bigman, S. K. Occupational conditions among the deaf. Washington, D.C.: Gallaudet College, 1959.

Lyman, H. B. Review of D. Wechsler, Wechsler Adult Intelligence Scale. In O.K. Buros (Ed.), The 7th Mental Measurement Yearbook (Vol. I) New York: The Gryphon Press, 1972.

Moores, D. F. The vocational status of young deaf adults in New England, Journal of Rehabilitation of the Deaf, 1969, 2, 29-41.

Moores, D., Harlow, M. J. and Fisher, S. Post-secondary programs for the deaf, Monograph I, Introduction and Overview. Research Report #60, Research, Development and Demonstration Center in Education of Handicapped Children. University of Minnesota, February, 1974.

Morrison, J. S. Industrial training: What shall we subtract, and what shall we add, in the new century of the deaf? American Annals of the Deaf, 1920, 65, 213-224.

Myklebust, H. R. The Psychology of Deafness. New York: Grune and Stratton, Inc., 1964.

North Seattle Community College Catalog 1973-1974. Seattle, Washington: Seattle Community College District, 1973.

Research using the reading measure and the nonreading measure of general learning ability for the deaf. (USES) Tech. Rep. No. 11) Washington, D.C.: United States Employment Service, August 1966.

Robinson, W., Park, A. and Axling, P. The industrial status of the deaf. American Annals of the Deaf, 1904, 49, 460-464.

Rogers, D. S. A plea for a polytechnic Institute for deaf-mutes. American Annals of the Deaf, 1888, 33, 184-185.

Rosenstein, J. and Lerman, A. Vocational status and the adjustment of deaf women. Lexington School for the Deaf Research Series, 1963.

Seattle Central Community College 1973-1974 Catalog. Seattle, Washington: Seattle Community College District, 1973.

South Seattle Community College 1973-1974 Catalog. Seattle, Washington: Seattle Community College District, 1973.

Stuckless, E. R. and Delgado, G. L. A guide to college/career programs for deaf students. Rochester, New York: National Technical Institute for the Deaf; Washington, D.C.: Gallaudet College, 1973.

Studies in achievement testing, hearing impaired students, United States: Spring 1971. Annual Survey of Hearing Impaired Children and Youth (Series D, Number 11). Washington, D.C.: Office of Demographic Studies, Gallaudet College, July 1973.

Traxler, S. R. (Ed.). A guide to educational programs for deaf students at Seattle Community College. Seattle, Washington: Seattle Community College, 1973.

Vernon, M. and Brown, D. W. A guide to psychological tests and testing procedures in the evaluation of deaf and hard of hearing children. Journal of Speech and Hearing Disorders, 1964, 29, 414-423.

Wechsler, D. The Measurement and Appraisal of Adult Intelligence (4th ed.). Baltimore, Md.: The Williams and Wilkins Company, 1958.

Wechsler, D. Wechsler Adult Intelligence Scale Manual. New York: The Psychological Corporation, 1955.

Wilkinson, W. Mechanic Art Schools. American Annals of the Deaf, 1885, 30, 177-187.

Williams, J. Seventieth Annual Report: American Asylum for the Deaf, Hartford, Connecticut: American Asylum for the Deaf, 1886.

TECHNICAL REPORTS

University of Minnesota Research, Development and Demonstration
Center in Education of Handicapped Children

(Place of publication shown in parentheses where applicable)

K. Hesse, J. Turnure & N. Buium. The comprehension and production of interrogatives in the language of normal and retarded children: A review and analysis. Occasional Paper #32. January 1975.

B. Egeland, R. Wozniak & A. Thibodeau. Visual information processing training program experimental version. Development Report #3. January 1975.

R. Hoffmeister, D. Moores & R. Ellenberger. The parameters of sign language defined: Translation and definition rules. Research Report #83. January 1975.

J. Turnure, N. Buium & M. Thurlow. The production deficiency model of verbal elaboration: Some contrary findings and conceptual complexities. Research Report #82. January 1975.

D. Moores, M. Goodwin & K. Weiss. Evaluation of programs for hearing impaired children: Report of 1973-74. Research Report #81. December 1974.

D. Moores, S. Fisher & M. Harlow. Post-secondary programs for the deaf: VI. Summary and Guidelines. Research Report #80. December 1974.

M. Harlow, S. Fisher & D. Moores. Post-secondary programs for the deaf: V. Follow-Up Data Analysis. Research Report #79. December 1974.

R. Wozniak. Psychology and education of the learning disabled child in the Soviet Union. Research Report #78. December 1974.

M. Thurlow, P. Krus, R. Howe, A. Taylor & J. Turnure. Measurement of Weight Unit: A formative evaluation. Research Report #77. December 1974.

M. Thurlow, P. Krus, R. Howe, A. Taylor & J. Turnure. Money Unit: A formative evaluation. Research Report #76. December 1974.

M. Harlow, D. Moores & S. Fisher. Post-secondary programs for the deaf: IV. Empirical Data Analysis. Research Report #75. December 1974.

C. Mueller & S. Samuels. Initial field test and feasibility study of the hypothesis/test word recognition procedures in the special education classroom. Research Report #74. December 1974.

P. Krus, M. Thurlow, J. Turnure & A. Taylor. Summative evaluation of the Time with the Clock Unit of the Money, Measurement and Time Program. Research Report #73. October 1974.

P. Krus, M. Thurlow, J. Turnure & A. Taylor. Summative evaluation of the Measurement of Weight Unit of the Money, Measurement and Time Program. Research Report #72. October 1974.

P. Krus, M. Thurlow, J. Turnure & A. Taylor. Summative evaluation of the Measurement of Length Unit of the Money, Measurement and Time Program. Research Report #71. October 1974.

P. Krus, M. Thurlow, J. Turnure & A. Taylor. Summative evaluation of the Money Unit of the Money, Measurement, and Time Program. Research Report #70. October 1974.

P. Krus, M. Thurlow, J. Turnure, A. Taylor & R. Howe. The formative evaluation design of the Vocabulary Development Project. Occasional Paper #31. October 1974.

J. Rynders, J. Horrobin, L. Wangsness & J. Swanson. The severe nature of verbal learning deficits in preschool Down's Syndrome (mongoloid) children. Research Report #69. August 1974.

R. Riegel. Reliability of children's sorting strategies using alternate forms of the SORTS test. Research Report #68. August 1974.

S. Fisher, D. Moores & M. Harlow. Post-secondary programs for the deaf: III. Internal view. Research Report #67. September, 1974.

W. Bart. A set-theoretic model for the behavioral classification of environments. Occasional Paper #29. July 1974.

D. Krus, W. Bart & P. Airasian. Ordering theory and methods. Occasional Paper #28. July 1974.

B. Egeland & A. Thibodeau. Selective attention of impulsive and reflective children. Research Report #66. July 1974.

R. Hoffmeister, B. Best & D. Moores. The acquisition of sign language in deaf children of deaf parents: Progress Report. Research Report #65. June 1974.

P. Krus. Use of family history data to predict intellectual and educational functioning longitudinally from ages four to seven. Research Report #64. June 1974.

P. Krus. Analyzing for individual differences in evaluating compensatory education programs. Occasional Paper #27. June 1974.

J. Rondal. The role of speech in the regulation of behavior. Research Report #63. June 1974.

N. Buium, J. Rynders & J. Turnure. A semantic-relational-concepts based theory of language acquisition as applied to Down's Syndrome children: Implication for a language enhancement program. Research Report #62. May 1974.

S. Fisher, M. Harlow & D. Moores. Post-secondary programs for the deaf: II. External view. Research Report #61. March 1974.

D. Moores, M. Harlow & S. Fisher. Post-secondary programs for the deaf: I. Introduction and overview. Research Report #60. February 1974.

D. Krus. Synopsis of basic theory and techniques of order analysis. Occasional Paper #26. April 1974.

S. Samuels, J. Spiroff & H. Singer. Effect of pictures and contextual conditions on learning to read. Occasional Paper #25. March 1974.

A. Taylor, M. Thurlow & J. Turnure. Elaboration as an instructional technique in the vocabulary development of EMR children. Research Report #59. March 1974.

N. Buium & J. Turnure. The universality of self-generated verbal mediators as a means of enhancing memory processes. Research Report #58. January 1974.

D. Moores, K. Weiss & M. Goodwin. Evaluation of programs for hearing impaired children: Report of 1972-73. Research Report #57. December 1973.

J. Turnure & W. Charlesworth, D. Moores, J. Rynders, M. Horrobin, S. Samuels, & R. Wozniak. American Psychological Association Symposium Papers. Occasional Paper #24. December 1973.

N. Buium. Interrogative types of parental speech to language learning children: a linguistic universal? Research Report #56. December 1973.

D. Krus. An outline of the basic concepts of order analysis. Occasional Paper #23. February 1974.

D. Krus. Order analysis: A fortran program for generalizable multidimensional analysis of binary data matrices. Occasional Paper #22. November 1973.

W. Bart. The pseudo-problem of IQ. Occasional Paper #21. October 1973.

J. Turnure & M. Thurlow. Verbal elaboration and the enhancement of language abilities in the mentally retarded: The role of interrogative sentence-forms. Occasional Paper #20. October 1973.

P. Dahl, S. Samuels & T. Archwamety. A mastery based experimental program for teaching poor readers high speech word recognition skills. Research Report #55. September 1973.

R. Riegel, F. Danner & L. Donnelly. Developmental trends in the generation and utilization of associative relations for recall by EMR and non-retarded children: The SORTS test. Research Report #54. August 1973.

R. Hoffmeister & D. Moores. The acquisition of specific reference in the linguistic system of a deaf child of deaf parents. Research Report #53. August 1973.

W. Bart & M. Smith. An interpretive framework of cognitive structures. Occasional Paper #19. June 1973.

C. Clark & J. Greco. MELDS (Minnesota Early Language Development Sequence) glossary of rebuses and signs. Occasional Paper #18. June 1973.

J. Turnure. Interrelations of orienting response, response latency and stimulus choice in children's learning. Research Report #52. May 1973.

S. Samuels & P. Dahl. Automaticity, reading and mental retardation. Occasional Paper #17. May 1973.

S. Samuels & P. Dahl. Relationships among IQ, learning ability, and reading achievement. Occasional Paper #16. May 1973

N. Buium & J. Rynders. The early maternal linguistic environment of normal and Down's Syndrome (Mongoloid) language learning children. Research Report #51. May 1973.

T. Archwamety & S. Samuels. A mastery based experimental program for teaching mentally retarded children word recognition and reading comprehension skills through use of hypothesis/test procedures. Research Report #50. May 1973.

W. Bart. The process of cognitive structure complexification. Research Report #49. April 1973.

B. Best. Classificatory development in deaf children: Research on language and cognitive development. Occasional Paper #15. April 1973.

R. Riegel, A. Taylor & F. Danner. The effects of training in the use of grouping strategy on the learning and memory capabilities of young EMR children. Research Report #48. April 1973.

J. Turnure & M. Thurlow. The latency of forward and backward association responses in an elaboration task. Research Report #47. March 1973.

R. Riegel & A. Taylor. Strategies in the classroom: A summer remedial program for young handicapped children. Occasional Paper #14. March 1973.

D. Moores. Early childhood special education for the hearing impaired. Occasional Paper #13. February 1973.

R. Riegel & A. Taylor. A comparison of conceptual strategies for grouping and remembering employed by educable mentally retarded and non-retarded children. Research Report #46. February 1973.

J. Rynders. Two basic considerations in utilizing mothers as tutors of their very young retarded or potentially retarded children. Occasional Paper #12. January 1973.

R. Bruininks, J. Rynders & J. Gross. Social acceptance of mildly retarded pupils in resource rooms and regular classes. Research Report #45. January 1973.

J. Turnure & M. Thurlow. The effects of interrogative elaborations on the learning of normal and EMR children. Research Report #44. January 1973. (Proceedings of the International Association for the Scientific Study of Mental Deficiency, in press).

J. Turnure & S. Samuels. Attention and reading achievement in first grade boys and girls. Research Report #43. November 1972. (Journal of Educational Psychology, 1974, 66, 29-32).

R. Riegel, A. Taylor, S. Clarren, & F. Danner. Training educationally handicapped children to use associative grouping strategies for the organization and recall of categorizable materials. Research Report #42. November 1972.

R. Riegel, F. Danner & A. Taylor. Steps in sequence: Training educationally handicapped children to use strategies for learning. Development Report #2. November 1972.

A. Taylor, M. Thurlow & J. Turnure. The teacher's introduction to: The Math Vocabulary Program. Development Report #1. March 1973.

J. Turnure & M. Thurlow. The effects of structural variations in elaboration on learning by normal and EMR children. Research Report #41. September 1972.

D. Moores. An investigation of the psycholinguistic functioning of deaf adolescents. Research Report #18. May 1971. (Exceptional Children, 1970, 36, 645-652.

D. Moores. Recent research on manual communication. Occasional Paper #7. April 1971. (Keynote Address, Division of Communication Disorders, Council for Exceptional Children Annual Convention, Miami Beach, April 1971.)

J. Turnure, S. Larsen & M. Thurlow. Two studies on verbal elaboration in special populations. I. The effects of brain injury; II. Evidence of transfer of training. Research Report #17. April 1971. (Study I: American Journal of Mental Deficiency, 1973, 78, 70-76.)

R. Bruininks & J. Rynders. Alternatives to special class placement for educable mentally retarded children. Occasional Paper #6. March 1971. (Focus on Exceptional Children, 1971, 3, 1-12.)

D. Moores. Neo-oralism and the education of the deaf in the Soviet Union. Occasional Paper #5. February 1971. (Exceptional Children, 1972, 39, 377-384.)

D. Feldman, B. Marrinan & S. Hartfeldt. Unusualness, appropriateness, transformation and condensation as criteria for creativity. Research Report #16. February 1971. (American Educational Research Association Annual Conference, New York, February 1971.)

P. Broen & G. Siegel. Variations in normal speech disfluencies. Research Report #15. January 1971. (Language & Speech, in press.)

44

D. Feldman. Map understanding as a possible crystallizer of cognitive structures. Occasional Paper #4. January 1971. (American Educational Research Journal, 1971, 3, 484-502.)

J. Rynders. Industrial arts for elementary mentally retarded children: An attempt to redefine and clarify goals. Occasional Paper #3. January 1971.

D. Moores. Education of the deaf in the United States. Occasional Paper #2. November 1970. (Moscow Institute of Defectology, 1971, published in Russian.)

R. Bruininks & C. Clark. Auditory and learning in first-, third-, and fifth-grade children. Research Report #14. November 1970.

R. Bruininks & C. Clark. Auditory and visual learning in first grade educable mentally retarded normal children. Research Report #13. November 1970. (American Journal of Mental Deficiency, 1972, 76, No. 5, 561-567.)

F. Danner & A. Taylor. Pictures and relational imagery training in children's learning. Research Report #29. December 1971. (Journal of Experimental Child Psychology, in press.)

J. Turnure & M. Thurlow. Verbal elaboration phenomena in nursery school children. Research Report #28. December 1971. (Study II: Proceedings of 81st Annual Convention of the American Psychological Association, 1973, 83-84.)

D. Moores & C. McIntyre. Evaluation of programs for hearing impaired children: Progress report 1970-71. Research Report #27. December 1971.

S. Samuels. Success and failure in learning to read: A critique of the research. Occasional Paper #9. November 1971. (In M. Kling, The Literature of Research in Reading with Emphasis on Modes, Rutgers University, 1971.)

S. Samuels. Attention and visual memory in reading acquisitions. Research Report #26. November 1971.

J. Turnure & M. Thurlow. Verbal elaboration and the promotion of transfer of training in educable mentally retarded children. Research Report #25. November 1971. (Journal of Experimental Child Psychology, 1973, 15, 137-148.)

78

A. Taylor, M. Josberger & S. Whitely. Elaboration training and verbalization as factors facilitating retarded children's recall. Research Report #24. October 1971. (Journal of Educational Psychology, in press.)

W. Bart & D. Krus. An ordering-theoretic method to determine hierarchies among items. Research Report #23. September 1971.

A. Taylor, M. Josberger & J. Knowlton. Mental elaboration and learning in retarded children. Research Report #22. September 1971. (Mental Elaboration and Learning in EMR children. American Journal of Mental Deficiency, 1972, 77, 69-76.)

J. Turnure & S. Larsen. Outerdirectedness in educable mentally retarded boys and girls. Research Report #21. September 1971. (American Journal of Mental Deficiency, in press.)

R. Bruininks, T. Glaman & C. Clark. Prevalency of learning disabilities: Findings, issues, and recommendations. Research Report #20. June 1971. (Presented at Council for Exceptional Children Convention, Miami Beach, April, 1971.)

M. Thurlow & J. Turnure. Mental elaboration and the extension of mediational research: List length of verbal phenomena in the mentally retarded. Research Report #19. June 1971. (Journal of Experimental Child Psychology, 1972, 14, 184-195).

G. Siegel. Three approaches to speech retardation. Occasional Paper #8. May 1971.

A. Taylor & N. Bender. Variations of strategy training and the recognition memory of EMR children. Research Report #40. September 1972. (American Educational Research Journal, in press.)

D. Moores, C. McIntyre, & K. Weiss. Evaluation of programs for hearing impaired children: Report of 1971-72. Research Report #39. September 1972.

R. Rubin. Follow-up of applicants for admission to graduate programs in special education. Occasional Paper #11. July 1972.

D. Moores. Communication -- Some unanswered questions and some unquestioned answers. Occasional Paper #10. July 1972.

A. Taylor & S Whitely. Overt verbalization and the continued production of effective elaborations by EMR children. Research Report #38. June 1972. (American Journal of Mental Deficiency, in press.)

R. Riegel. Measuring educationally handicapped children's organizational strategies by sampling overt groupings. Research Report #37. May 1972.

E. Gallistel, M. Boyle, L. Curran, & M. Hawthorne. The relation of visual and auditory aptitudes to first grade low readers' achievement under sight-word and systematic phonic instruction. Research Report #36. May 1972.

E. Gallistel & P. Fischer. Decoding skills acquired by low readers taught in regular classrooms using clinical techniques. Research Report #35. May 1972.

J. Turnure & M. Thurlow. Verbal elaboration in children: Variations in procedures and design. Research Report #34. March 1972.

D. Krus & W. Bart. An ordering-theoretic method of multidimensional scaling of items. Research Report #33. March 1972.

J. Turnure & S. Larsen. Effects of various instruction and reinforcement conditions on the learning of a three-position oddity problem by nursery school children. Research Report #32. March 1972.

J. Turnure & S. Larsen. Outerdirectedness in mentally retarded children as a function of sex of experimenter and sex of subject. Research Report #31. March 1972.

J. Rynders & M. Horrobin. A mobile unit for delivering educational services to Down's Syndrome (Mongoloid) infants. Research Report #30. January 1972. (Presented at Council for Exceptional Children, Special National Conference, Memphis, December, 1971.)

R. Bruininks. Teaching word recognition to disadvantaged boys with variations in auditory and visual perceptual abilities. Research Report #12. November 1970. (Journal of Learning Disabilities, 1970, 3, 30-39.)

R. Bruininks & W. Lucker. Change and stability in correlations between intelligence and reading test scores among disadvantaged children. Research Report #11. October 1970. (Journal of Reading Behavior, 1970, 2, 295-305.)

R. Rubin. Sex differences in effects of kindergarten attendance on development of school readiness and language skills. Research Report #10. October 1970. (Elementary School Journal, 72, No. 5, February, 1972.)

R. Rubin & B. Balow. Prevalence of school learning & behavior disorders in a longitudinal study population. Research Report #9. October 1970. (Exceptional Children, 1971, 38, 293-299.)

D. Feldman & J. Bratton. On the relativity of giftedness: An empirical study. Research Report #8. August 1970. (American Educational Research Annual Conference, New York, February 1971.)

J. Turnure, M. Thurlow & S. Larsen. Syntactic elaboration in the learning & reversal of paired-associates by young children. Research Report #7. January 1971.

80

R. Martin & L. Berndt. The effects of time-out on stuttering in a 12-year-old boy. Research Report #6. July 1970. (Exceptional Children, 1970, 37, 303-304.)

J. Turnure & M. Walsh. The effects of varied levels of verbal mediation on the learning and reversal of paired associates by educable mentally retarded children. Research Report #5. June 1970. (Study I: American Journal of Mental Deficiency, 1971, 76, 60-67. Study II: American Journal of Mental Deficiency, 1971, 76, 306-312.)

J. Turnure, J. Rynders, & N. Jones. Effectiveness of manual guidance, modeling & trial and error learning for inducing instrumental behavior in institutionalized retardates. Research Report #4. June 1970. (Merrill-Palmer Quarterly, 1973, 19, 49-65.)

J. Turnure. Reactions to physical and social distractors by moderately retarded institutionalized children. Research Report #3. June 1970. (Journal of Special Education, 1970, 4, 283-294.)

D. Moores. Evaluation of preschool programs: An interaction analysis model. Occasional Paper #1. April 1970. (Keynote Address, Diagnostic Pedagogy, International Congress on Deafness. Stockholm, August 1970; also presented at American Instructors of the Deaf Annual Convention, St. Augustine, Florida, April 1970.

D. Feldman & W. Markwalder. Systematic scoring of ranked distractors for the assessment of Piagetian reasoning levels. Research Report #2. March 1970. (Educational and Psychological Measurement, 1971, 31, 347-362.)

D. Feldman. The fixed-sequence hypothesis: Individual differences in the development of school related spatial reasoning. Research Report #1. March 1970.